Solar Commercial Storage Tanks

FACTORY JACKETED AND INSULATED SOLAR COMMERCIAL STORAGE TANKS

Large volume solar storage tanks from A. O. Smith are designed for storing potable water. These storage tanks are fitted with additional openings to suit the specific needs of solar thermal, commercial heat pump, and other renewable energy heat sources.

These tanks are available as pre-configured Specialty Solar Tanks and as Custom Solar Tanks built to specified application requirements. See the Custom Solar Tank options on page 4 and consult your factory representative for more information.

SJV-140 thru 2000
and
SJH-200 thru 1000

FEATURES

SPECIALTY SOLAR TANKS: Vertical tanks from 140 to 2,000 gallons, horizontal tanks from 200 to 1,000 gallons. A. O. Smith commercial solar storage tanks are constructed with openings for potable water and solar thermal/renewable energy applications as shown in the drawings that follow. These heavy duty storage tanks have been designed for new construction and retrofit applications.

ASME CONSTRUCTION
- All tanks are ASME constructed at 160 psi working pressure. Consult your factory representative for tanks with greater or lesser working pressures

GLASSLINED
- Specialty Solar Tanks feature A. O. Smith PermaGlas® coating that provides superior protection against corrosion and is fused to all inner tank surfaces at 1600°F

INSULATION
- All tanks are surrounded with 3 inches of high density fiberglass insulation to reduce costly heat loss; insulation is non-sagging and verminproof. To meet ASHRAE 90.1 (current edition) depth of insulation cavity requires use of remote bulb-type tank temperature control and thermometer. Storage tanks meet R12.5 minimum thermal insulation requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1

JACKET/CABINET
- All tanks feature heavy gauge steel with high quality powder coat paint that provides additional insulating qualities for greater energy savings

CATHODIC PROTECTION
- All tanks are furnished with factory installed magnesium anodes designed for maximum protection

CONNECTIONS
- Tanks will be supplied with the fittings located as indicated on the drawings unless specified otherwise. Manhole or handholes are optional on glasslined tanks but are included on cement lined tanks

TEMPERATURE SENSORS
- Factory installed upper and lower temperature sensor wells with Pt1000 type sensors and internal wiring pre-installed.

CUSTOM SOLAR TANKS: See options and suggested specification on page 4.

ASME OPTIONAL **CRN**

These storage tanks are eligible for a 30% federal tax credit when installed as part of a complete commercial solar thermal hot water system.

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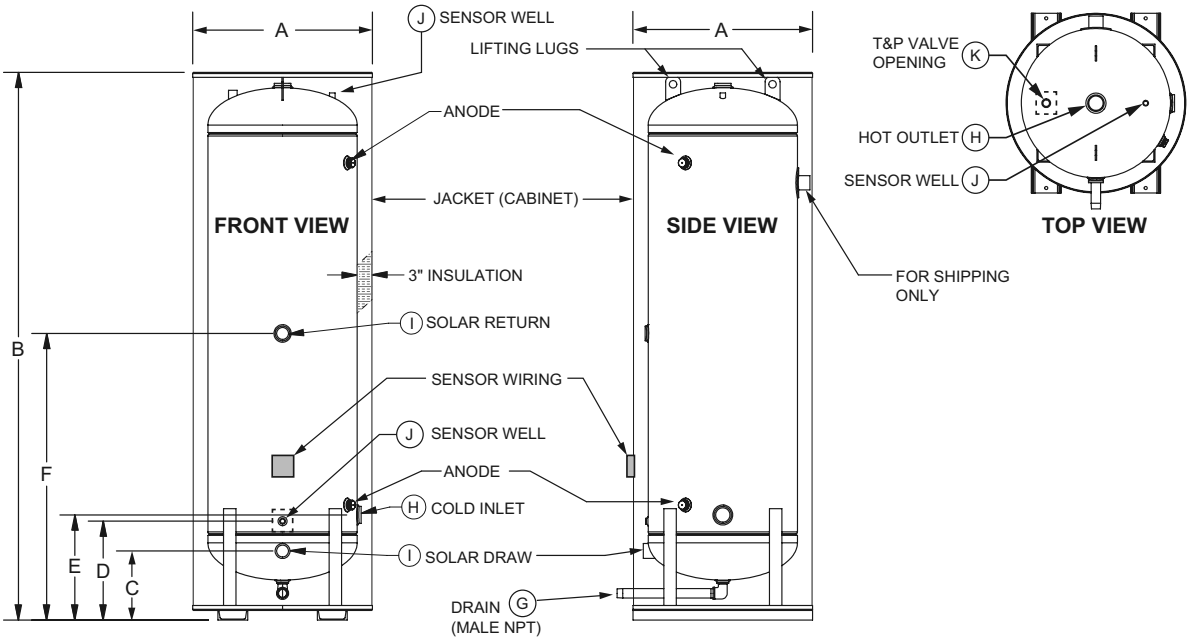
VERTICAL STORAGE TANKS



DRAWING NOTES:

- Inspection openings, IE: handholes and manholes, are optional with glasslined or stainless steel tanks and will only be included when specified. Tanks so equipped are FOB Seattle.
- All openings female pipe thread except as noted.
- Number of factory installed anode rods will vary with tank size.

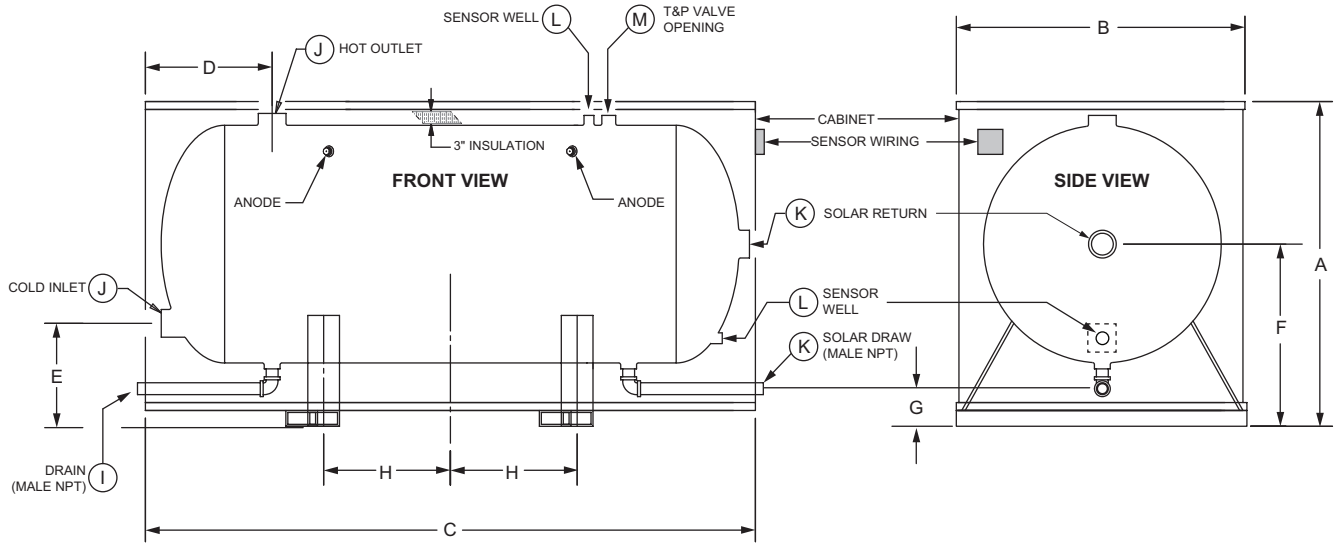
SJV-140 THROUGH SJV-2000

MODEL	NOMINAL VOLUME (GALLONS)	GLASSLINED DRY WEIGHT (LBS.)	WIDTH	HEIGHT	SOLAR DRAW HEIGHT	LOWER SENSOR HEIGHT	COLD INLET HEIGHT	SOLAR RETURN HEIGHT	DRAIN (IN. NPT)	INLET/OUTLET CONNECTIONS (IN. NPT)	SOLAR LOOP CONNECTIONS (IN. NPT)	*SENSOR WELLS (IN. NPT)	T&P VALVE OPENING (IN. NPT)
			A	B	C	D	E	F	G	H	I	J	K
SJV-140	140	613	30	86	13	18 1/2	19	49 1/2	1 1/2	2 1/2	1 1/2	1/2	1
SJV-200	200	749	36	82	14	20	20	48	1 1/2	2 1/2	1 1/2	1/2	1
SJV-250	250	811	36	95	14	20	20	54	1 1/2	2 1/2	1 1/2	1/2	1
SJV-300T	300	898	36	110	14	20	20	62	1 1/2	2 1/2	1 1/2	1/2	1
SJV-300S	300	857	42	82	15 1/2	21 1/2	22	48	1 1/2	2 1/2	2	1/2	1
SJV-350	350	942	42	97	15 1/2	21 1/2	22	56	1 1/2	2 1/2	1 1/2	1/2	1
SJV-400	400	1436	42	104	15 1/2	21 1/2	22	59	1 1/2	2 1/2	2	1/2	1
SJV-450	450	1565	42	118	15 1/2	21 1/2	22	66 1/2	1 1/2	2 1/2	2	1/2	1
SJV-500T	500	1682	42	133	15 1/2	21 1/2	22	74	1 1/2	2 1/2	2	1/2	1
SJV-500S	500	1714	48	99	17	23	23 1/2	57	1 1/2	3	2 1/2	1/2	1
SJV-600	600	1820	48	114	17	23	23 1/2	65	1 1/2	3	2	1/2	1
SJV-700	700	1911	48	130	17	23	23 1/2	73	1 1/2	3	2	1/2	1
SJV-800	800	2974	54	120	18	24 1/2	25	68	1 1/2	3	2 1/2	1/2	1
SJV-900	900	3208	54	128	18	24 1/2	25	72	1 1/2	3	2 1/2	1/2	1
SJV-1000T	1000	3697	54	148	18	24 1/2	25	82	1 1/2	3	2 1/2	1/2	1 1/2
SJV-1000S	1000	3947	**66	99	21	27 1/2	28	58	1 1/2	3	3	1/2	1 1/2
SJV-1500	1500	4456	**60	164	19 1/2	26	26 1/2	90 1/2	1 1/2	3	3	1/2	1 1/2
SJV-2000T	2000	6035	**66	176	21	27 1/2	28	97	1 1/2	3	3	1/2	1 1/2
SJV-2000S	2000	5952	**78	131	24	30 1/2	31	75	1 1/2	3	3	1/2	1 1/2

All dimensions are in inches.
Four vertical tanks are available in short and tall models. The S and T designators at the end of the model numbers are used to identify these models.
* Sensor well openings are 1/2" NPT female. All models have factory installed Pt1000 temperature sensors and wiring to an external junction box. Access covers are provided for field supplied temperature sensors and servicing.
** These models will have rectangular jackets when manufactured for indoor use. All other models will have round jackets.

A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

HORIZONTAL STORAGE TANKS



DRAWING NOTES:

- Inspection openings, IE: handholes and manholes, are optional with glasslined or stainless steel tanks and will only be included when specified. Tanks so equipped are FOB Seattle
- All openings female pipe thread except as noted
- Number of factory installed anode rods will vary with tank size

SJH-200 THROUGH SJH-1000

MODEL	NOMINAL VOLUME (GALLONS)	GLASSLINED DRY WEIGHT (LBS.)	HEIGHT	DEPTH	LENGTH	HOT OUTLET CENTER	COLD INLET HEIGHT	SOLAR RETURN HEIGHT	SOLAR DRAW HEIGHT	TANK SADDLE CENTERS	DRAIN (IN. NPT)	INLET/OUTLET CONNECTIONS (IN. NPT)	SOLAR LOOP CONNECTIONS (IN. NPT)	*SENSOR WELLS (IN. NPT)	T&P VALVE OPENING (IN. NPT)
			A	B	C	D	E	F	G	H	I	J	K	L	M
SJH-200	200	1020	41	36	77	16	13	23	4	16	1 1/2	2 1/2	1 1/2	1/2	1
SJH-250	250	1082	41	36	90	16	13	23	4	22 1/2	1 1/2	2 1/2	1 1/2	1/2	1
SJH-350	350	1232	47	42	93	17 1/2	12	26	4	22 1/2	1 1/2	2 1/2	1 1/2	1/2	1
SJH-400	400	1402	47	42	99	17 1/2	12	26	4	26	1 1/2	2 1/2	2	1/2	1
SJH-500	500	2270	59	54	79	23	14	32	4	11	1 1/2	3	2	1/2	1
SJH-750	750	2970	59	54	111	23	14	32	4 1/2	27	1 1/2	3	2 1/2	1/2	1
SJH-1000	1000	3751	59	54	143	23	13	32	5	43	1 1/2	3	3	1/2	1 1/2

All dimensions are in inches.
* Sensor well openings are 1/2" NPT female. All models have factory installed Pt1000 temperature sensors and wiring to an external junction box. Access covers are provided for field supplied temperature sensors and servicing.

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CUSTOM SOLAR TANKS: Customized solar tanks with specified construction materials and configurations are also available; consult your factory sales representative for more information.

CUSTOM OPTIONS INCLUDE:

- Glasslined tanks
- Cement lined tanks
- Stainless steel tank construction
- Specified gallon capacities up to 12,500 gallons
- Specified tank dimensions
- Specified tank openings
- Specified tank opening locations
- Outdoor models - entire tank is sprayed with minimum of 2 inch high-density polyurethane foam insulation that forms a watertight jacket that is approved for outdoor use. Meets or exceeds the thermal efficiency and standby loss requirements of the U.S. Department of Energy and Current Edition of the ASHRAE/IESNA 90.1
  - Note: Minimum foam insulation thickness is 2 inches; however, since tank is hand sprayed, insulation thicknesses may be greater in some areas giving the finished tank an uneven but watertight surface
- Additional insulation - provides R16 insulation value - adds 8" to tank jacket diameter/cabinet dimensions
- Supplemental/backup heat sources
  - Electric heating element packages - standard voltages 208/240 VAC (single/three phase), 480 three phase. Advanced electronic controller, modulating step control, low water cutoffs. Contact your factory sales representative for available kW input configurations
  - Tank heaters - flange mounted removable single/double wall copper tube heat exchangers for backup heating from low pressure steam or boiler water
  - Tank heaters - flange mounted removable single/double wall copper tube heat exchangers for supplemental heat from alternate heat sources such as geo-thermal, air or water source heat pumps

LIMITED WARRANTY OUTLINES

GLASSLINED and CEMENT: If the tank should leak anytime during the first five years, under the terms of the warranty, A. O. Smith will repair or replace the tank; installation, labor and handling extra.

NOTE: THIS OUTLINE IS NOT A WARRANTY. For complete information, consult the written warranty or A. O. Smith. Warranty does not apply to product installed outside of the United States of America or its territorial possessions and Canada.

SAMPLE SPECIFICATION FOR CUSTOM-LINE STORAGE TANKS

When jacketed or insulated these models meet R12.5 minimum thermal insulation requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1.

ASME storage tank to be A. O. Smith Custom-Line model _____. Capacity to be _____ gallons with a diameter of _____ inches. Tank(s) shall be constructed and stamped according to ASME specifications for _____ psi working pressure. Manhole (11 x 15), handhole (4x6) or inspection openings (2-2″) shall be installed in accordance with ASME code requirements and manufacturer(s) standard practice. Tank to be constructed of (carbon steel) _____. Lining shall be (glass or cement) _____. Tank(s) lined with (glass or cement) _____lining shall be equipped with the number and size of magnesium anode rod(s) sufficient to provide adequate protection for the tank lining.

Tank shall be (vertical, horizontal) _____ design and provided with (four) _____ (angle iron legs, threaded leg socket(s)) _____ ring base, _____ saddles.

Tank shall be equipped with two (one upper and one lower) factory-installed Pt1000 temperature sensors for renewable energy control devices such as those used on solar thermal control systems. Sensor wells shall be installed in 1/2 inch female NPT openings to accommodate Pt1000 sensors. These wells shall be removable to accommodate field supplied temperature sensing devices. Wiring for temperature sensors will be factory installed and terminate in a junction box affixed to the outside jacket. On outdoor models this wiring shall terminate in a weather proof wiring box.

SAMPLE SPECIFICATION FOR TANK HEATERS (Tube Bundle Heat Exchangers)

Tank heaters shall be Model No. _____ 3/4″ OD 20 gauge copper "U" tubes. The tank heater shall be a (single, double) _____ wall heat exchanger construction. Tank heater to have _____ square feet of heating surface to heat _____ gallons per hour from _____ degrees F to _____ degrees F with heating media of _____ psi steam (or _____ degrees F boiler, heat pump, geothermal, or other heat source water). The tank heater element shall be constructed so that the entire section can be removed from the tank for cleaning and inspection.

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